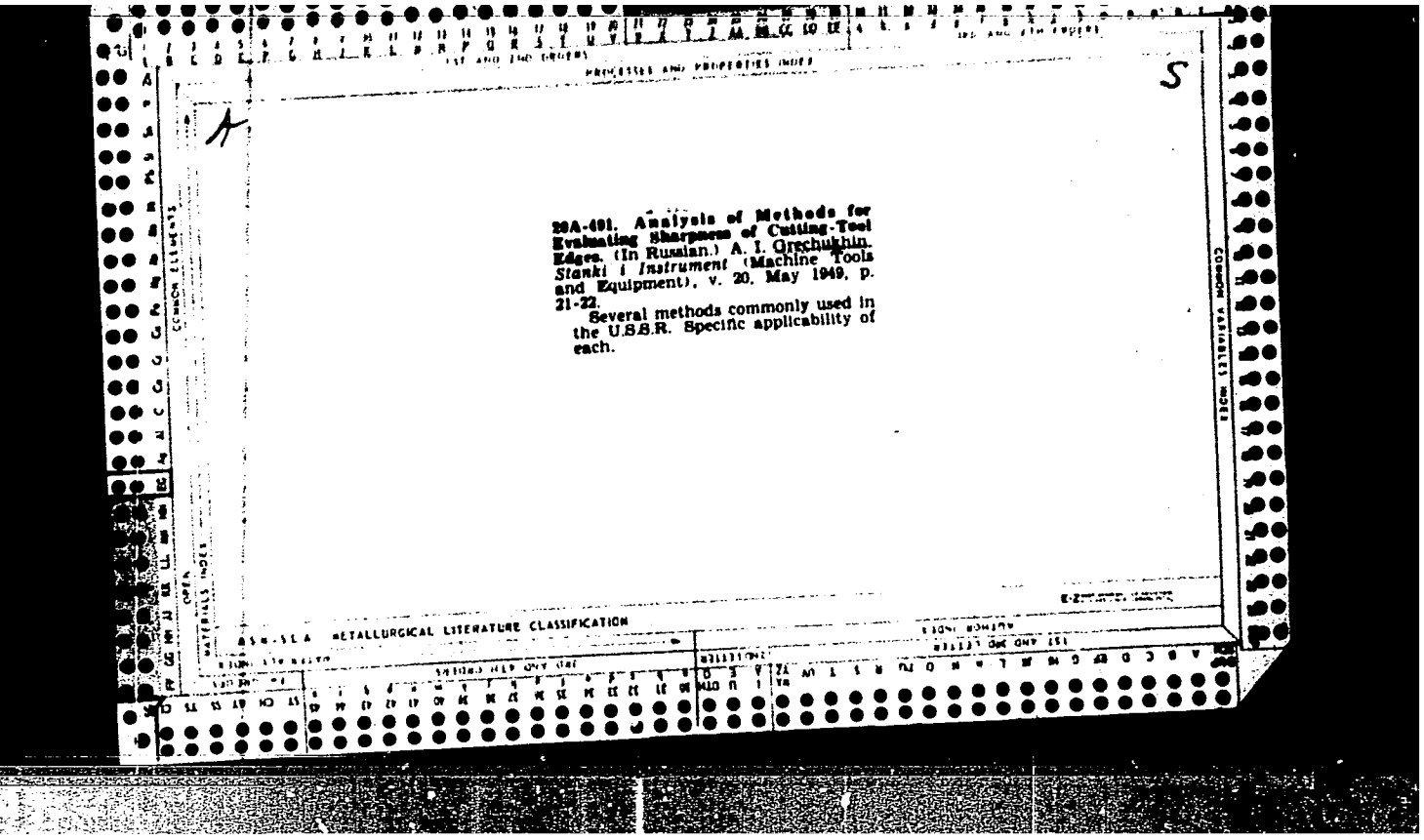


20A-491. Analysis of Methods for Evaluating Sharpness of Cutting-Tool Edges. (In Russian.) A. I. Grechukhin. *Stanki i Instrument* (Machine Tools and Equipment), v. 20, May 1949, p. 21-22.

Several methods commonly used in the U.S.S.R. Specific applicability of each.

GRECHUKHIN, A. I.

Applied Mechanics Reviews
Vol. 7 No. 4
Apr. 1954
Mechanics of Forming and Cutting

1143. Grechukhin, A. I., Effect of the cutting edge sharpness on the quality of surface in metal work (in Russian), Stanki i Instrument no. 5, 23–25, May 1953.

Radius at cutting edge was taken as a measure of tool sharpness for experiments described. A 40-ton vertical broaching machine with 5-teeth broaching insets was used because of some obvious advantages. Only 2 teeth were cutting. Tooth form was: top rake 20°, clearance angle 2°. Insets were made from P. 18 steel of R.62–64. Cutting-edge radius varied from 0.000375 to 0.00197 in. by hand honing and was measured on an MIS-11 bifocal microscope. Tooth surface finish was to 5.9 microinches on top face and 11.8 microinches on clearance face. Depth of cut varied from 0.00039 to 0.00197 in. per tooth. Cutting speed was 2.28 fpm, and a sulfurized mineral oil was used as coolant. Samples were made from an alloy steel, 2X12, with a considerable chromium content. Effect of cutting-edge sharpness and depth of cut on surface roughness and depth of compressed outer layer of metal were determined.

It is stated in conclusion that cutting-edge sharpness has a marked influence on roughness and depth of compressed layer. Increasing the cutting-edge radius from 0.000375 to 0.00197 in. may nearly double the surface roughness and increase compressed layer depth by 50 to 60%. The depth of cut is stated to also have an appreciable effect on surface roughness, while cutting speed and tooth geometry show a much lesser influence. Three graphs and four photographs are given.

J. H. Dzierzonski, England

5-27-5

GRECHUKHIN, A.I.

KOVALEV, M.K.; KOSTIN, V.Ye.; BONDARENKO, D.A.; GRECHUKHIN, A.I.

Measuring minor dimensions. Stan. i instr. 28 no.12:27-28 D '57. (MIRA 10:12)
(Microscope)

KOSTOUSOV, A.I.; BRITSKO, K.M.; VOLODIN, Ye.I.; GRECHUKHIN, A.I.; DEGTYARENKO, N.S.; DOBROSKOK, A.N.; MARDANYAN, M.Ye.; NAYDENOV, I.A.; PROKOPOVICH, A.Ye.; TELYATNIKOV, L.P.; USPENSKIY, Ya.K.; KHLYNOV, V.N.; PERL'SHTEYN, Ye.A., nauchnyy red.; YEVSEVICHEV, V.I., red.; BUDOVA, L.G., tekhn.red.; NADEINSKAYA, A.A., tekhn.red.

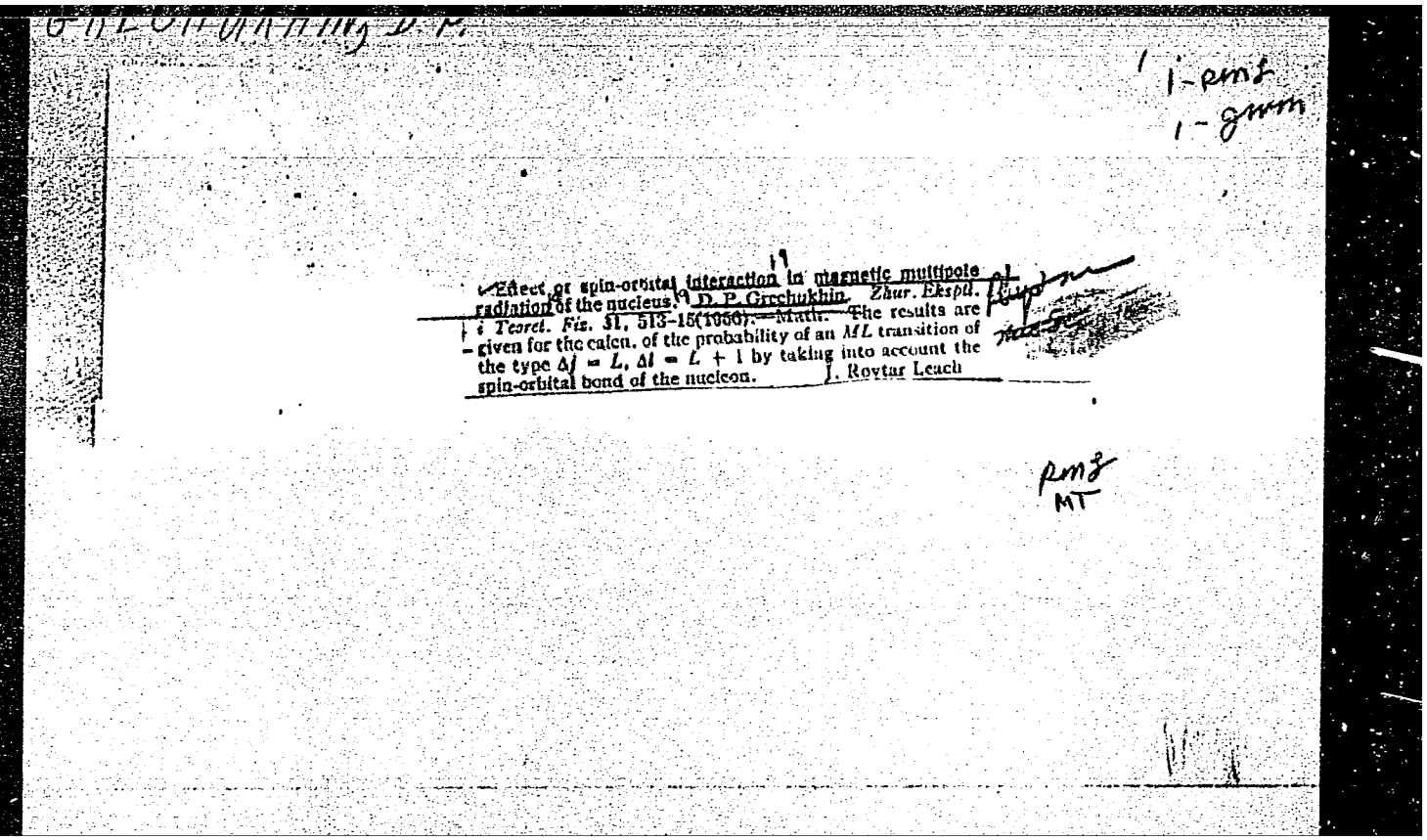
[Machine-tool manufacture in Japan] IAponskoe stankostroenie. Pod obshchei red. A.E.Prokopovicha i M.E.Mardaniana. Moskva, TSentr. biuro tekhn.informatsii, 1959. 461 p. (MIRA 13:9)

1. Moscow (Province) Oblastnoy sovet narodnogo khozyaystva. (Japan--Machine tool industry)

KOSTOUSOV, A.I.; VASIL'YEV, V.S.; GRECHUKHIN, A.I.; DEGTYARENKO, N.S.; PETROCHENKOV, A.G.; PROKOFOVICH, A.Ye.; TELESHOV, A.P.; SHEVYAKOV, L.N.; GONCHAROVA, S.L., nauchn. red.; BORUSHMOY, I.V., red.; LOGINOVA, R.A., red.; MONAKHOVA, N.F., red.; SHCHEGLOVA, I.B., red.; KOVAL'SKAYA, I.F., tekhn. red.

[Machine-tool industry in Japan according to materials from the Machine-tool Exhibition of 1962 in Osaka] Stankostroenie IAponii; po materialam stankostroitel'noi vystavki 1962 goda v g.Osaka. Moskva, 1963. 473 p. (MIRA 16:12)

1. Moscow. TSentral'nyy institut nauchno-tekhnicheskoy informatsii po avtomatizatsii i mashinostroyeniyu.
(Japan--Machine-tool industry)



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Effect of spin-orbital interaction in magnetic multipole radiation of the nucleus. D. P. Grechukhin. *Zhur. Eksptl. i Teoret. Fiz.* 31, 513-15(1956).—Math. The results are given for the calcn. of the probability of an ML transition of the type $\Delta J = L$, $\Delta J = L + 1$ by taking into account the spin-orbital bond of the nucleon. J. Roytar Leach

rm2
MT

GRECHUKHIN, D. P

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1929
AUTHOR GRECUCHIN, D.P.
TITLE The Effect Produced by the Finity of the Mass of the Target Nucleus on the Angular Distribution of the Products of the Reactions (dp) and (dn).
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.5, 895-897 (1956)
Issued: 1 / 1957

The author computed angular distribution in consideration of the finity of nuclear mass by the same method of "sewing together" and by basing upon the same conditions as S.T.BUTLER, Proc.Roy.Soc. A 208, 559 (1951). On this occasion the problem as to whether these conditions are permitted or not was disregarded. The present work deals with the results obtained by these computations. First, the rather voluminous formula for angular distribution is written down; it differs only little from BUTLER'S formula. These differences are described. In the case of an infinitely great mass of the target nucleus the formula found by the author goes over into BUTLER'S formula. Taking the finity of nuclear mass into account leads to the modification of the reaction radius R_0, and every time to an increase of the same. Also the angular distribution of the products of the reaction is somewhat deformed, particularly in the case of angles $\theta < 50^\circ$. For purposes of illustration a diagram shows angular distribution of a proton group obtained in connection with the reaction $Be_4^9(dp)Be_4^{10}$ at $E_d = 3,6$. On the occasion of this reaction a neutron is captured on to to ground state of Be_4^{10}.

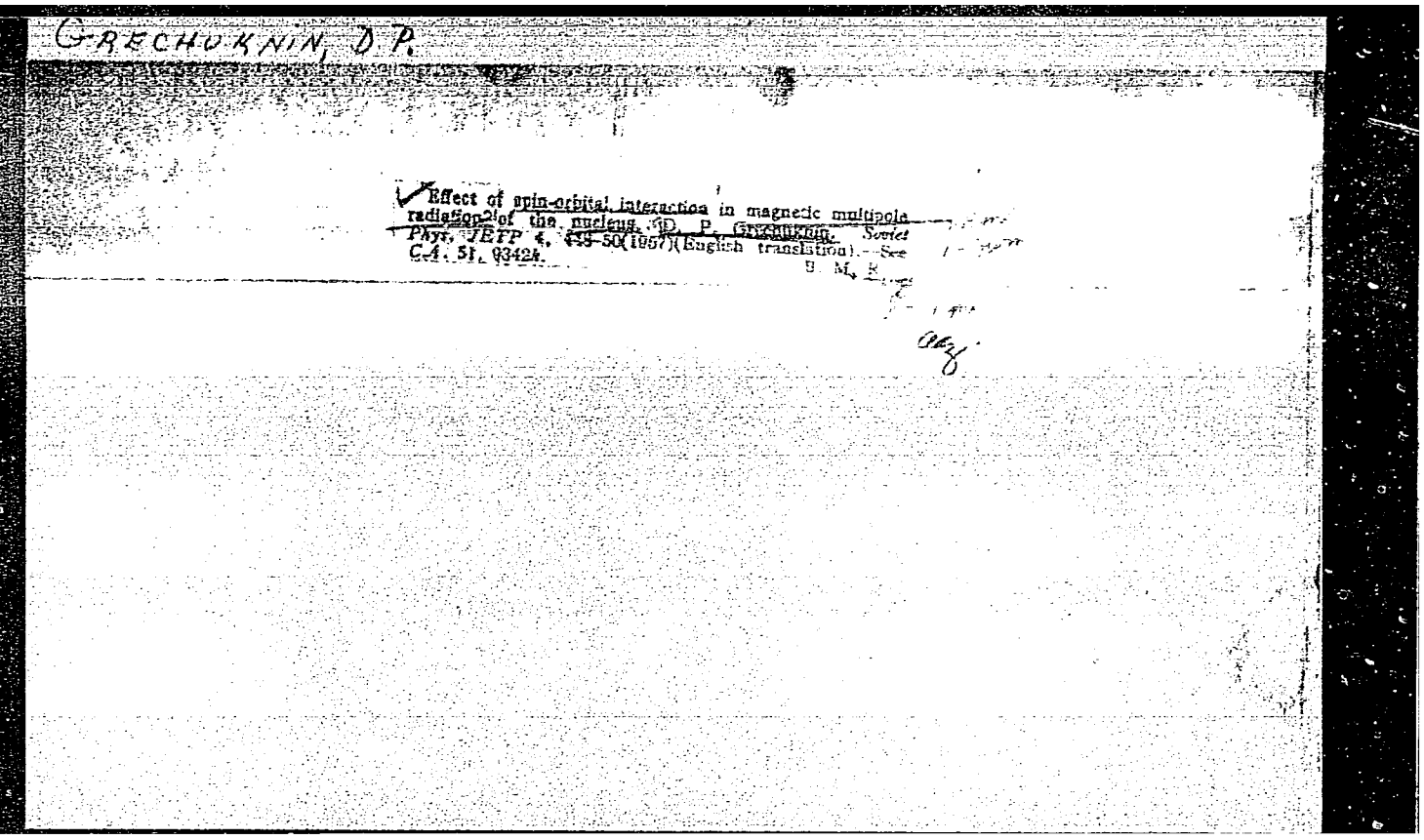
Žurn.eksp.i teor.fis,31,fasc.5,895-897 (1956) CARD 2 / 2 PA - 1929

Taking the finity of the mass of the nuclear target into account leads to high values of R_o. When R_o is determined from the condition of the conformity of the first maximum (or the first minimum), the positions of the second maxima and minima of the distribution curve, by the way, agree with experimental values.

The example mentioned here is not the only one possible. Thus, a similar computation leads to the value $R_o = 5,3.10^{-13}$ cm instead of $r_o = 4,3.10^{-13}$ cm, in the case of the reaction $He_2^3(dp)He_2^4$ at $E_d = 10,2$ MeV (or at $H_1^3(dn)He_2^4$).

Like in the preceding case, agreement of the theoretical with the experimental position of the first minimum immediately leads to agreement between the positions of the following maxima and minima. With increasing energy of the deuterons the significance of the correction which takes the finite of nuclear mass into account, increases. Therefore the decrease of nuclear mass found by M.M.GORDON, Phys.Rev.99, 1625A (1955) may probably be explained by the fact that in computations the finity of nuclear mass was not taken into account.

INSTITUTION:



GRECHUKHIN, D. P.

Effect of spin-orbital interaction in magnetic multipole radiation of the nucleus. D. P. Grechukhin. Soviet Phys. JETP 4, 455-50(1957)(English translation). See C.A. 51, 9342h.

GRECHUKHIN, D. P.

Distr: 4E3d

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THE EFFECT OF FINITENESS OF TARGET-NUCLEUS MASS ON ANGULAR DISTRIBUTION IN (d, p) AND (d, n) REACTIONS. D. P. Grechukhin. Soviet Phys. JETP 4, 759-61(1957) June.

GRECHUKHIN, D P

56-5-13/55

AUTHOR GRECHUKHIN, D.P.

TITLE The Electrical Monopole Transitions of the Atomic Nuclei. (Elektricheskiye monopol'nyye perekhody atomnykh yader.- Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 5, pp 1036-1049 (USSR)

ABSTRACT The paper under review computes the probabilities of some processes connected with the EO-transition of a nucleus. In this context, the nucleus is considered a, with respect to the volume, uniformly charged sphere with the radius

$$R_0 = r_0 A^{1/3} = 1.2 \cdot 10^{-13} A^{1/3} \text{ cm.}$$

The screening effect of the atomic electrons is neglected. The author of the paper under review investigated processes of electrons the energy of which is not too high, so that $kR_0 \ll 1$. (In this context, k denotes the wave vector of the electron). At heavy nuclei, this limits the applicability of the results to electron energies of $\varepsilon \leq 15$ MeV. The retardation is not taken into account. The computations are carried out in relativistic units and, in this context, the formalism of the

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The Electrical Monopole Transitions of the Atomic Nuclei.

spherical spinors is used. The paper under review has the following structure:
The wave function of the electron in the field of an extended nucleus (electrons in the bound state, electrons in the continuous energy spectrum $\varepsilon > 0$, the electron on the negative level of the continuous spectrum ($^{-}\varepsilon$)). The matrix element of the electrical monopole. The probability of the E0-transitions the conversion of a shell electron from the state $(n, j\lambda)$, the pair conversion of a monopole, the nonelastic scattering of the electrons). The effects of the finite dimensions of the nucleus. The relativistic amount of the M1-, E2- and E0-transitions of the nucleus. The estimate of the matrix element of the transition for the nucleus (one-particle model, the hydrodynamic polarisation oscillations of the nucleus, the quadrupole oscillations at the surface of the nucleus). Some results of the computations.
(2 charts)

ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: 28.3. 1956, resubmitted after changes on 11.1.1957.
AVAILABLE: Library of Congress.

CARD 2/2

GRECHUKHIN, D.P.

AUTHOR GRECHUKHIN, D.P.

TITLE On the Angular Distribution of Deuterons from the Be^9_4 (pd) Be^8_4 Reaction. 56-6-24/56
(K voprosu ob uglovom raspredelenii deytonov v reaktsii Be^9_4(pd) Be^8_4.- Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 6, pp 1460-1463 (U.S.S.R.)

ABSTRACT The present paper shows that already at proton energies of from 8 MeV upwards the domain within the Be^9_4 nucleus furnishes the main contribution to the reaction Be^9_4(pd)Be^8_4. At first the angular distribution of the deuterons in the approximation of the plane waves is dealt with. As is known, Be^9_4 is a loose system (analogous to the deuteron). Therefore the theory for the stripping of Be^9_4 can be developed according to the same scheme as developed by BUTLER for the stripping of the deuteron. For the explanation of the problem of the reaction of the essential domain investigated here it is sufficient to carry out computations in the approximation of the plane waves, i.e. the interaction of the proton and the deuteron

CARD 1/3

On the Angular Distribution of Deuterons from the Be_4^9 (pd) Be_4^8 Reaction.

56-6-24/56

with the Be_4^8 may be neglected. The computations take their course according to a totally analogous scheme as is the case with S.T. BUTLER, Proc.Roy.Soc., A 208,559 (1951). After some computations the function of the angular distribution is obtained which is then specialized for the case of the (pd)-reaction. Already at proton energies of $E_p \sim 8$ MeV the contribution of the interer domain of the nucleus Be_4^9 is essential and comparable to the contribution of the exterior domain. Accordingly the angular distribution found at the approximation of the plane wave is not suitable for energies of the order of magnitude of the depth of the potential well. The application of the distribution of protons obtained by means of BUTLER'S theory leads to an essential difference between the experimental and the theoretical distribution curves of the deuterons. At proton energies $E_p >> V$ the distortions of the functions with respect to V/E_p can be neglected and the angular distribution can be computed with plane waves.
(With 3 Illustrations)

CARD 2/3

On the Angular Distribution of Deuterons from the Be_4^9 (pd) Be_4^8 Reaction.

56-6-24/56

ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: 24.9. 1956
AVAILABLE: Library of Congress.

CARD 3/3

GRECHUKHIN, D.P.

56-4-29/54

AUTHOR: Grechukhin, D.P.

TITLE: Conversion of the L II and L III - Electron of an E1-γ-Quantum in an E0 - Nuclear Transition (Konversiya L II i L III - elektronov s izlucheniyem E1-γ- kvanta pri E0 - perekhode yadra)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 1037 - 1038 (USSR) (Letter to the Editor)

ABSTRACT: The conversion process of the L II and the L III electrons is theoretically examined in which the electron, under emission of an E1 quantum, goes over to a state with $j = 1/2$, $l = 0$ and then converts in an E0 nuclear transition. The case is examined that the quantum energy is $k \leqslant Ze^2/2$. The calculations are made with Coulomb's function for electrons in the nuclear field, namely with the second order of the perturbation theory. The finite dimensions of the nucleus are only taken into account in the calculation of the matrix elements of the E0 - transition. There are 1 figure and 1 Slavic reference.

Card 1/2

56-4-29/54

Conversion of the L II and L III - Electron of an E1- γ - Quantum in an E0 - Nuclear Transition

ASSOCIATION: AN USSR (Akademiya nauk SSSR)

SUBMITTED: May 5, 1957

AVAILABLE: Library of Congress

Card 2/2

GRECHUKHIN, D.P.

AUTHOR GRECHUKHIN, D.P. 56-7-26/66

TITLE Some Peculiarities of M - 1 - Conversion Nuclear Transitions (Nekotoryye osobennosti konversionnykh M - 1 - perekhodov yadra. Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 183 - 189 (U.S.S.R.)

ABSTRACT The present paper gives the results of the calculations of the conversion probabilities of a K-electron for various M-1-transitions of a nucleus. Here $p \gg Ze^2$ is assumed to be true for the momentum of the final state of the electron, and the transition of the K-electron into the state ($j = 3/2$, $\lambda = +1/2$, $\ell = 2$) is neglected. In the model investigated here the wave function of the nucleus is divided into a radical part and into an azimuthal part. First the vector potential of the M-1-transition is computed on the assumption of a punctiform nucleus; the rather voluminous expressions found here are explicitly written down. Next, the M-1-transition of the neutrons and protons are computed in an analogous manner. The ($\vec{L}\,\vec{S}$) coupling of the proton leads to an additional term in the interaction of the proton with the electron. The interaction operator for proton transitions is written down.

The effect of the interaction of the nucleons: The interaction of the nucleons of the trunk with that of the nucleon causing the transition

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56-7-26/66

Some Peculiarities of M - 1 - Conversion Nuclear Transitions

leads to a deviation from the model and to the interaction of the nucleon with the outer flux of the electronic transition. This considerably increases the probability of the conversion transition. This interaction considerably increases the probability of the radiation transition of the nucleus. In conclusion the author gives a rough estimate of the interaction of the nucleons for the case of neutron transition ($\nu s_{1/2} - \mu s_{1/2}$).
(No illustrations).

ASSOCIATION Not given
PRESENTED BY
SUBMITTED 4.1.1957
AVAILABLE Library of Congress

Card 2/2

GRECHUKHIN, D. P. Cand Phys-Math Sci -- (diss) "Electromagnetic processes in atomic nuclei." Mos, 1959. 7 pp (Min of Higher and Secondary Specialized Education RSFSR. Mos Phys Engineering Inst), 100 copies. Bibliography at end of text (14 titles) (KL, 52-59, 116)

GRECHUKHIN, D.P.

Nucleon-core model of a nucleus with a vibration spectrum of the excited core. Zhur.eksp.i teor.fiz. 37 no.4:1026-1033 O '59. (MIRA 13:5)

1. Moskovskiy gosudarstvennyy pedagogicheskiy institut.
(Nuclei, Atomic)

Grechukhin, D.P.

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S/056/60/038/02/41/061
B006/B014

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AUTHOR: Grechukhin, D. P.

TITLE: Circular Polarization of Gamma Quanta 19 Accompanying the Capture of Slow Neutrons by a Nucleus 19

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 621 - 630

TEXT: The spectra of gamma quanta emitted during the de-excitation of a nucleus that has captured a neutron have been studied theoretically by L. V. Groshev et al., who found the following rules: 1) the gamma spectra are line spectra within the range $A < 100$ and in the neighborhood of the magic nuclei. 2) Within the range $100 < A < 200$ the spectra are almost continuous but show several intense lines. The causes are described. These rules permit the assumption that the γ-spectrum of n-capture within a given A-interval can be described by means of a simple statistical model as has been used for the calculation of the mean radiation widths of neutron resonances (Refs. 2-4). In this model, which is also used in the present paper, the spectrum $\nu(\hbar\omega)$ is determined by the nuclear level

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density $\varrho(\varepsilon)$ and the dependence of the emission probability $W_L(\hbar\omega)$ of a quantum of the multipolarity L upon its energy. A comparison between the calculated spectrum and experimental results permits the determination of the nuclear level density parameters a and λ. The author gives an estimate of the order of magnitude of circular polarization and of the anisotropy of the angular distribution of the cascade quanta emitted by a primarily polarized compound nucleus, spin I of the emitting nucleus being considered. The theoretical considerations are based upon the γ-cascade scheme of an even-even nucleus shown in Fig. 1: The compound nucleus produced after the resonant capture of the neutron by the target passes, due to emission of N quanta, to one of the levels of the interval of the width Δ, which is immediately above the gap of the nuclear energy spectrum (gap width of 2Δ). On transition from this interval to a level in the neighborhood of the ground state the characteristic quantum that produces a single intense spectral line, is emitted. In the interval above the gap the level density is relatively small, and the γ-transitions between these levels depend on the structure of the nucleus. For the following estimates it is assumed that the level density of a nucleus having the spin I be given by

$\varrho_I(\varepsilon) \approx \varrho(I,\alpha)\varrho(\varepsilon)$, where $\varrho(I,\alpha)$ is independent of the excitation energy. Estimates are carried out for two models: a) the model of the free Fermi gas of nucleons having a level density distribution according to Bethe; b) for $\varrho_I(\varepsilon) = \text{const}.\varrho(\varepsilon)(2I+1)\exp\{-I(I+1)/\alpha^2\}$ in the interval $\varepsilon > 3\Delta$, and

$$\varrho_I(\varepsilon) = \begin{cases} \text{const at } I_N \leq I_{N\,max} \\ 0 \quad \text{at } I_N > I_{N\,max} \end{cases} \quad \text{in the interval } 3\Delta > \varepsilon > 2\Delta.$$

For the polarization $\bar{e}_{I_0}(\theta)$ and the angular distribution $\bar{F}_{I_0}(\theta)$ the author obtained the formulas p.627 below and p.628 above, which are then briefly discussed. For the two models, Fig. 2 shows the dependence of the maximum polarization of the cascade quanta averaged over the spectrum upon the parameter α of a nucleus with $\varrho(I,\alpha)$, for $I_0 = J+1/2 = 4$ and $I_0 = J-1/2 = 3$ (I_0 - spin of the compound nucleus). The author thanks L. V. Groshev, V. V. Sklyarevskiy, B. A. Obinyakov, and B. T. Geylikman for their interest

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Circular Polarization of Gamma Quanta Accompanying the Capture of Slow Neutrons by a Nucleus

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in this investigation, as well as V. G. Nosov and V. M. Strutinskiy for having supplied the results of their studies prior to their publication. There are 2 figures, 2 tables, and 8 references: 4 Soviet, 1 English, 2 Canadian, and 1 American.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut (Moscow State Pedagogical Institute)

SUBMITTED: February 16, 1959 (initially) and October 8, 1959 (after revision)

Card 4/4

85696

S/056/60/038/006/039/049/XX
B006/B070

24.4500

AUTHOR: Grechukhin, D. P.

TITLE: The Possibility of an Experimental Verification of the Model of Nonaxial Nuclei With a Rotational Spectrum

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 6, pp. 1891 - 1893

TEXT: The energy spectrum of some even-even nuclei in the regions $60 \lesssim A \lesssim 160$ and $180 \lesssim A \lesssim 240$ was interpreted by A. S. Davydov and G. F. Filippov as a rotational spectrum of nonaxial deformed nuclei whose surfaces are determined by the deformation parameters β and γ (DF-model). A comparison between experiment and theory for the level spectrum and M1 and E2 transition probabilities, carried out by Davydov et al. (Refs.1-4), showed that some even-even nuclei can be well described by the DF model. These spectra were formerly interpreted as vibrational spectra of excited nuclei, and a good partial agreement with experimental results could be obtained. In the neighborhood of the magic atomic weights, good agreement could be achieved also with the shell model with residual interactions

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The Possibility of an Experimental Verification of the Model of Nonaxial Nuclei With a Rotational Spectrum

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between the nucleons. Thus, the most suitable model has not yet been found. The present work is a contribution to the solution of this problem. It can be shown that an observation of E0 transitions of the type $I^+ \rightarrow I^+$ ($I \neq 0$, I - nuclear spin) can be considered a crucial test for the DF model. Additional data can be obtained from a study of the isotopic level shift of the atomic electrons. This shift in heavy elements is determined by the mean square of the radius of proton distribution in the ground state of the nucleus: $\langle r^2 \rangle = \langle 0 | \sum_{i=1}^{Z} r_i^2 | 0 \rangle$. For the vibrational model one obtains $\langle r^2 \rangle_{vibr} = \frac{3}{5} Z R_0^2 \left\{ 1 + \frac{5}{4\pi} \beta_{vibr}^2 \right\}$, where $\beta_{vibr} = 5\hbar\omega/2C_2$. The analogous formula for the DF model reads $\langle r^2 \rangle_{DF} = \frac{3}{5} Z R_0^2 \left\{ 1 + \frac{5}{4\pi} \beta^2 + \frac{15}{8\pi} \beta^3 \cos\gamma \left[1 - 4\sin^2\gamma \right] \right\}$. β^2 and β_{vibr}^2 can be determined from the reduced E2 transition probabilities: $B(E2; 21 \rightarrow 0) \sim 9 Z^2 e^2 R_0^4 \beta^2 / 80\pi^2$ (analogously for

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The Possibility of an Experimental Verification of the Model of Nonaxial Nuclei With a Rotational Spectrum

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β^2_{vibr}). For nuclei with equidistant spectrum ($\gamma = 30^\circ$), $\langle r^2\rangle_{DF} = \langle r^2\rangle_{vibr}$. The change of $\langle r^2\rangle_{DF}$ on transition from one isotope to another is determined by a change of the parameters β and γ. While a change in γ does not affect the shift for nuclei with equidistant spectrum, γ is dicontinuously changed by transitions to magic nuclei or axisymmetric nuclei with rotational spectrum. Thus, according to the DF model, γ has the values 30°, 13.7°, and 0° for Gd^{152}, Gd^{154}, and Gd^{156}, respectively. Similar results hold for Sm^{150}, Sm^{152}, and Sm^{154}, and Dy^{160}, Dy^{162}, and Dy^{164}. The DF model can be verified by a study of the isotopic shift of these nuclei. I. S. Shapiro is thanked for his interest in the work. There are 9 references: 5 Soviet and 4 US.

SUBMITTED: February 6, 1960

Card 3/3

86912
S/056/60/039/005/029/051
B006/B077

24.4500

AUTHOR: Grechukhin, D. P.

TITLE: The Possibility of an Experimental Verification of the Model of the Nonaxial Rotators by Examining the Effect of the Medium Upon the Angular Correlation of a γ-Quantum Cascade

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1371-1373

TEXT: The author proposes a method which makes it possible to examine the rotator model and its principles as suggested by A. S. Davydov and G. F. Filippov. The experiment is based on the measurement of the attenuation factor of the angular correlation of γ-quantum for similar cascades in the isotopes of the same element which are located in identical media. If the rotator model is correct then there must be close relationship between the quadrupole moment Q_2 of the nucleus in an excited state of the rotator and the nuclear deformation γ. An experimental

The Possibility of an Experimental Verification of the Model of the Nonaxial Rotators by Examining the Effect of the Medium Upon the Angular Correlation of a γ-Quantum Cascade

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determination of $Q_2(\gamma)$ is very difficult because the field of the medium is unknown and it is almost impossible to estimate it. This difficulty can be overcome by comparing the moments Q_2 of different isotopes of one element, Q_2 being determined by measuring the attenuation factor of correlation in one and the same medium. Now it is possible to cancel the unknown field strength and other parameters from the ratio. The even-even isotopes of Nd, Sm, Gd, W, Os and Pt ($0<\gamma\leq 30^\circ$) are very suited for this purpose. If the attenuation of the angular correlation in a liquid medium is measured then it is not necessary to know the exact lifetime of the intermediate state of the nucleus. The case of a gamma cascade $I_i \rightarrow I_B \rightarrow I_f$ (cf. Ref. 2) is examined, $I_B \rightarrow I_f$ being E2-transitions. For $I_B = 2^+$ a formula for $f^2_{21}(\gamma)$ is given and this function is represented graphically; ($f_{21} = -f_{22} = -3\cos 3\gamma/\sqrt{1+8\cos^2 3\gamma}$). The terms in this function can be determined experimentally. There are 1 figure and 2

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The Possibility of an Experimental Verification of the Model of the Nonaxial Rotators by Examining the Effect of the Medium Upon the Angular Correlation of a γ-Quantum Cascade

S/056/60/039/005/029/051
B006/B077

references: 1 Soviet, and 1 US.

SUBMITTED: June 15, 1960

Card 3/3

GRECHUKHIN, D.P.

Dynamic effect of the nuclear volume in conversion M1-transitions of even-even nuclei in the nonaxial rotator model and in the vibrational nuclear model. Zhur. eksp. i teor. fiz. 40 no.4:1185-1189 Ap '61. (MIRA 14:7)
(Nuclear models) (Internal conversion (Nuclear physics))

GRECHUKHIN, D.P.

Magnetic dipole transitions in even-even nuclei with quadrupole collective excitations. Zhur. eksp. i teor. fiz. 40 no.6:1732-1737 Je '61. (MIRA 14:8)

(Dipole moments)
(Nuclei, Atomic)

L 21108-66 EWT(1)/T IJP(c)
ACC NR: AT6006748 SOURCE CODE: UR/3136/65/000/873/0001/0011

AUTHOR: Volkov, B. I.; Grechukhin, D. P.; Karpushkina, E. I.

ORG: Physics Department, Moscow State University im. M. V. Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Tables of photoionization cross sections for the hydrogen atom 21,44,55 59 56

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-873, 1965. Tablitsy secheniy fotoionizatsii atoma vodoroda, 1-11 and 240 pages of tables

TOPIC TAGS: ionization cross section, photoionization, hydrogen

ABSTRACT: Tables are given for the photoionization cross sections of (n, l)-states of the hydrogen atom for n between 1 and 15 inclusive. Compilation of these tables was prompted by analysis of various methods for producing streams of fast highly excited neutral atoms for accumulating a hot plasma in magnetic traps. One of the possible methods considered was photon excitation of hydrogen atoms from the $1s$ and $2s$ states. In this case, the yield of excited (n, l)-states of the hydrogen atom is determined by the balance of excitation and decay processes. One of the chan-

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L 21108-66
ACC NR: AT6006748

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nels for decay of (n, l)-states of the hydrogen atom in this case is the photoionization process. The method used for calculating the tables is given and the behavior of the photoionization cross section close to the threshold level is analyzed. Original has 2 tables contained on 240 pages. The authors thank O. S. Kostyrev, N. F. Semikova and Z. V. Tokareva for assistance in compiling the tables.
Orig. art. has: 1 figure, 2 tables, 12 formulas.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 002

Card 2/2 dda

L 39605-66 EWT(m) DIAAP GD-2

ACC NR: AP6015810 SOURCE CODE: UR/0386/66/003/010/0422/0424

AUTHOR: Grechukhin, D. P.

ORG: none

TITLE: Collective M1 transitions of even nuclei 19

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 10, 1966, 422-424

TOPIC TAGS: quantum theory, operator equation, asymptotic expansion, quadrupole moment, excited state

ABSTRACT: The author replies to a criticism raised by P. O. Lipas (Phys. Lett. v. 8, 279, 1964) and others to his and A. S. Davydov's earlier conclusions (Nucl. Phys. v. 40, 422, 1963 and earlier) concerning the collective M1 transitions of even nuclei. He shows by analyzing the Hamiltonian of a phenomenological model of collective quadrupole excitations of nuclei that the angular-momentum operator of the nucleus cannot be set in correspondence with the angular-momentum operator as given by the hydrodynamic model, since in general not all the relations between classical quantities are valid for quantum operators. Although the earlier papers by Davydov and by the author do contain an error in the expansion of the hydrodynamic angular-momentum operator, the error can lead only to a change by a numerical factor of the order of 9/8 and does not change the qualitative results. More detailed results of the analysis will be published in the journal "Yadernaya fizika." Orig. art. has: 13 formulas.

SUB CODE: 20/ SUBM DATE: 19Mar66/ OTH REF: 005

Card 1/1

L 06974-67 EWT(1)/EWT(m)/EWP(t)/ETI IJP(d) JD/AT

ACC NR: AP6018351 SOURCE CODE: UR/0089/66/020/005/0407/0412

AUTHOR: Grechukhin, D. P.; Karpushkina, E. I.; Sokolov, Yu. L.

ORG: none

TITLE: Optic excitation and ionization of fast hydrogen

SOURCE: Atomnaya energiya, v. 20 no. 5, 1966, 407-412

TOPIC TAGS: hydrogen atom reaction, magnetic trap, plasma injection, optic transition, excited state, photoionization, laser application

ABSTRACT: The authors consider the possibility of increasing the efficiency of injection of fast hydrogen atoms into a magnetic trap by one of two methods: 1. By increasing the populations of the upper levels ($n \sim 10$) in a beam of fast hydrogen atom through irradiation with quanta that are resonant to the chosen $n_1l_1 \rightarrow n_2l_2$ transition (for example, 2s -- 10p). The dependence of the population of the n_2- l_2 level on the radiation density and on the travel time of the atom in the optical field is determined. An estimate of the necessary light-source power is presented on the basis of the obtained data. 2. By photoionization of the hydrogen atoms directly in the active zone of the trap. On the basis of the calcu-

Card 1/2 UDC: 533.9:539.186:539.188

L 06974-67

ACC NR: AP6018351

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lated dependence of the photoionization cross section of the hydrogen atom on the wavelength of the irradiation, the authors estimate the power of the light source necessary for effective ionization of the atoms. In the first method, the light flux should have the power of approximately 4.7×10^6 erg/sec-cm^2, and can be provided either with a laser or with an extended isotropic source placed along the beam trajectory. Whereas the laser power can range from 0.5 to 500 W/cm^2, depending on the line width, the required power of the isotropic extended source would be 10^8 -- 10^9 W, which is unattainable in practice. The authors thank I. N. Golovin for discussions and support and Z. V. Tokareva for numerical calculations and plotting the curves. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 20 SUBM DATE: 16Sep65/ ORIG REF: 002 OTH REF: 009

Card 2/2 fdh

ACC NR: AP7007195 SOURCE CODE: UR/0367/66/004/006/1134/1146

AUTHOR: Grechukhin, D. P.

ORG: none

TITLE: Ionization of an atomic electron shell by the fluctuation electromagnetic field generated by the Brownian motion of the heated nucleus surface

SOURCE: Yadernaya fizika, v. 4, no. 6, 1134-1146

TOPIC TAGS: electromagnetic field, Brownian motion, nuclear energy, electron shell, electron spectrum

ABSTRACT: An analysis is made of the Brownian motion of the heated nucleus surface in the framework of the thermodynamical approximation, i. e., for the case when the nucleus temperature 0 is essentially greater than the characteristic energy $\hbar\omega_0$ of the nucleus quadrupole oscillation. Equations are obtained for the probability of the ionization of the atomic shell by the fluctuation electromagnetic field generated by the Brownian motion of the nucleus surface. It is shown that the electron spectrum depends essentially on the value of the parameter which character-

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ACC NR: AP7007195

izes the damping of the nucleus quadrupole oscillation due to the viscosity of the nuclear medium. Orig. art. has: 60 formulas and 1 table. [Author's abstract]
[NT]

SUB CODE: 20/SUBM DATE: 25Oct65/ORIG REF: 004/OTH REF: 002/

GONCHARENKO, N.I., kand.tekhn.nauk; GRECHUKHIN, I.M., inzh.; KARSSKIY, V.Ye., inzh.

Vacuum treatment of cast iron for roll casting. Stal' 21 no.12:1137-1141 D '61. (MIRA 14:12)

1. Lutuginskiy zavod prokatnykh valkov.
(Rolls(Iron mills))
(Vacuum metallurgy)

BOUS, A.A.; BRITAYEV, M.D.; GRECHUKHIN, N.A.; KREYTER, V.M., glavnyy red.; SHATALOV, Ye.T., red.; YEROFEYEV, B.N., red.; ZENKOV, D.A., red.; KRASNIKOV, V.I., red.; NIFONTOV, R.V.; SMIRNOV, V.I., red.; KHRUSHCHOV, N.A., red; YAKZHIN, A.A., red.; PROKOF'YEV, A.P., red; NEMANOVA, G.F., red.izd-va; PEN'KOVA, S.L., tekhn.red.

[Prospecting for beryllium, tantalum, and niobium deposits] Razvedka mestorozhdenii berilliia, tantala i niobiia. Moskva, gos. nauchn.-tekh. uzd-vo literatury po geologii i okhrane nedr. 1957 94 p. (Moscow. Vsesoiuznyi nauchno-issledovates'skii institut mineral'nogo syr'ia. Metodicheskie ukazaniia po proizvodstvu geologo-razvedochnykh rabot, no.2). (MIRA 11:3)

(Ore deposits) (Prospecting)

GRECHUKHIN, V., kapitan 3-go ranga

Submariners have raised their naval skill. Komm.Vooruzh.Sil 1 no.6:44-45 M[redacted]l. (MIRA 14:8)
(Submarine boats)

GRECHUKHIN, V.A.

Study thoroughly the history of the U.S.S.R. sugar industry. Sakh. prom. 30 no.12:60-63 D '56. (MLRA 10:1)
(Sugar industry--History)

GRECHUKHIN, V.A.

USSR/General Topics - Methodology, History, Scientific Institutions and Conferences, Instruction, Problems Concerning Bibliography and Scientific Documentation. A-1

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 1.

Author : V.A. Grechukhin.
Inst : -
Title : Some Problems Concerning Development of Sugar Industry in Pre-Revolution Russia.

Orig Pub : Sakharnaya prom-st', 1957, No 9, 5-8.

Abstract : Abridged historical sketch of industry development since the beginning of the XVIII century.

Card 1/1

GRECHUKHIN, V.A.

Prospects for the development of the sugar industry in the Belgorod Province. Sakh.prom. 34 no.6:7-10 Je '60. (MIRA 13:7)

1. Giprosakhar.
(Belgorod Province--Sugar industry)

GRECHUKHIN, V.A.

Writing the history of sugar factories. [redacted]h. prom. 35 no.8: 4-6 Ag '61. (MIRA 14:8)

1. Giprosakhar pri Vserossiyskom Sovete Narodnogo Khozyaystva. (Sugar industry)

GRECHUKHIN, V.A.

Sugar production and demand in prerevolutionary Russia and in the U. S. S. R. Sakh. prom. 35 no.12:13-16 D '61. (MIRA 15:1)

1. Gosudarstvennyy institut po proyektirovaniyu novogo stroitel'stva i rekonstruktsii predpriyatiy sakharnoy promyshlennosti.
(Sugar industry)

GRECHUKHIN, V.A.

Economic efficiency of the automation of technological processes in sugar manufacture. Sakh.prom. 37 no.6:47-51 Je '63. (MIRA 16:5)

1. Gosudarstvennyy institut po proyektirovaniyu novogo stroitel'stva i rekonstruktsii predpriyatiy sakharnoy promyshlennosti.
(Sugar industry) (Automation)

GRECHUKHIN, V. V., Cand Geol-Min Sci -- (diss) "Methods of Investigation of the Cross Sections of Coal-Pits According to the Data of Measurements of Electrical Resistance of the Rocks in the Northeastern Part of the Pechora Coal Basin." Mos, 1957. 14 pp (Min of Higher Education USSR, Mos Order of Labor Red Banner Petroleum Inst im Academician I. M. Gubkin, Chair of Industrial Geophysics), 120 copies (KL, 47-57, 86)

GRECHUKHIN, V.V.

AUTHOR: Grechukhin, V.V. 132-10-7/13

TITLE: Determination of Ash Contents of Coal Layers by Means of Rock Samples and Diagrams of Apparent Resistance (Opredeleniye zol'-nosti ugol'nykh plastov po gruntonosnym probam i diagrammam kazhushchikhsya soprotivleniy)

PERIODICAL: Razvedka i okhrana nedr, 1957, # 10, p 35-40 (USSR)

ABSTRACT: The application of geophysical methods for determinating the quality of coal has become most important with the introduction of drilling of coreless samples. One of the fundamental indications of the quality of coal are its contents of ashes. A method for determining the ash contents of coal layers from samples of rocks and diagrams of apparent resistance is presented in this article. Fluctuations of apparent resistance of cross-cuts in relation to their ash contents were studied in the Pechora Basin. This functional dependence, found by statistical methods, is shown in Figure 5. The author recommends a method of using the curve of apparent resistance for establishing the average ash contents. The average ash content of a layer can be easily found as soon the ash contents, the thickness and the specific weight of different blocks of coal are known. This method is fairly accurate. The following types of probes were used in the

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132-10-7/13

Determination of Ash Contents of Coal Layers by Means of Rock Samples and Diagrams of Apparent Resistance

Pechora Basin: M 3., 5AO, 1B. It must be stressed that the submitted method for the determination of ash contents of coal can be applied to layers which are examined with gradient probes of dimensions exceeding the thickness of the layers. Only in such instances may be expected that the change of resistance through the layer reflects the variations of ash contents. There are 7 diagrams.

ASSOCIATION: Pechora Geophysical Expedition (Pechorskaya geofizicheskaya ekspeditsiya)

AVAILABLE: Library of Congress

Card 2/2

GRECHUKHIN, V.V.

Results of the carrying out of technological and geophysical investigations in the Pechora coal basin. Razved.i okh.nedr 23 no.5:43-51 My '57. (MIRA 10:8)

1.Pechorskaya geofizicheskaya ekspeditsiya.
(Pechora Basin--Coal geology)

AUTHORS: Grechukhin,V.V. and Ifanov,S.A. 132-58-7-7/13

TITLE: Experience of Drilling without Core Samples in the Pechora Coal Basin (Opyt beskernovogo bureniya v Pechorskom ugol'nom basseyne)

PERIODICAL: Razvedka i okhrana nedr, 1958, Nr 7, pp 38-41 (USSR)

ABSTRACT: Exploratory drilling without core samples, but using geophysical methods, was realized at a Vorkuta deposit in the Pechora region. This section was chosen for a trial coreless drilling because its geological composition was already known from regular prospecting drilling, and results of sounding by geophysical means could be thoroughly checked by established geological profiles. Geophysical prospecting was achieved by the method of apparent resistance and partly by the method of gamma-gamma core-sampling. Diagrams of apparent resistance were registered with the aid of three sounds A3.5M0.1N, N0.1M3.5A and N3.5M0.1A. The electric profiles obtained were compared with lithologic profiles, and as a result, electric marks were isolated

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Experience of Drilling without Core Samples in the Pechora Coal Basin.

and concrete regularities of isolation of various lithologic layers on the geophysical diagrams were established. A table (fig.3) shows the resistance of various coal bearing and other layers. There are 5 diagrams.

ASSOCIATION: Pechorskaya geofizicheskaya ekspeditsiya (The Pechora Geophysical Expedition)

1. Geology--USSR 2. Geophysical prospecting

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14(5) SOV/132-59-6-6/16

AUTHOR: Grechukhin, V.V.

TITLE: The Regularities of the Regional Variation of Electric Resistance of Rocks in the Pechora Coal Basin

PERIODICAL: Razvedka i okhrana nedr, 1959, Nr 6, pp 34 - 40 (USSR)

ABSTRACT: The author describes the correlation between the variation of the specific electric resistance of enclosing rocks and the commercial quality of coal in the conditions of the closed Pechora Basin. He proves the possibility of forecasting the quality of coal as a function of the variation of the specific resistance of rocks. The same given series of beds from the Vorkuta suite was investigated throughout the whole Pechora Basin. Research carried on with a standard gradient-sounder A3, 5MO, 1N, showed that values of the apparent resistance do not always reflect to the same degree, the specific resistances of different rocks: the apparent resistance is nearest

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to the true resistance for beds of a low resistance (argillites and aleurolites) and differs sharply from high resistance rocks (carbonaceous sandstones and coals). Variation graphs of values of the apparent and true resistances of these rocks were built up from the results of the survey. The curves were compared, and it was found that the variation of the apparent resistance (ρ_k) is in accordance with the variation of the true resistance (ρ_p) of the same rocks. The ratio $\frac{\rho_p}{\rho_k}$ is constant for all deposits of the Basin and the factor $K = \frac{\rho_p}{\rho_k}$ is: 1,2, for argillites; 1,3, for aleurolites and 2,0 for sandstones. The research also showed that in the coal and intensely carbonated sandstone beds there is no proportional correlation between the apparent and the true specific resistances, the apparent re-

sistance depending on the thickness of the beds. In these cases, the lateral electric core-sampling (BKZ) is used. The comparison of obtained results showed that the specific resistance of all mentioned rocks, and the average resistance of the whole Vorkuta series, regularly increase from south-west to north-east and north-west to south-east (Table 1). That means that the geographical location of rocks is a determinant in the variation of their resistance. The specific resistance of rocks depends on their porosity, the dimension of grains and on the specific resistance of water in the pores of the rocks. As the two last characteristics could be considered identical for the whole series of rocks, it could be said that the regional variation of the specific resistance of rocks is conditioned by the regional variation of their porosity. Again, as the variation of the porosity is connected with the metamorphism and the conditions of sedimentary accumu-

The Regularities of the Regional Variation of Electric Resistance of Rocks in the Pechora Coal Basin

lations, the regional variation of porosity is an indicator of the degree of metamorphism in sandstones, aleurolite and argillites. The commercial quality of coals varies in the same direction as the enclosing rocks, and the increase in the degree of their carbonization corresponds to the increase in the degree of the metamorphism of these rocks. Between the Vorgashorskoye and the Verkhne-Syryaginskoye deposits, the gas coal is gradually transformed into poor coal. Subsequent finds of better quality coals in regions situated to the east of the investigated zone substantiate the theory. The names of G.A. Ivanov, L.I. Sarbeyeva and A.T. Donabedov are mentioned in this article. There are 4 tables, 5 graphs and 4 Soviet references.

ASSOCIATION: Pechorskaya geofizicheskaya ekspeditsiya (The Pechora Geophysical Expedition)

GRECHUKHIN, V.V.

Using logging data for correlating coal-bearing sediments. Razved. i okh. nedr.26 no.11:28-33 N '60. (MIRA 13:12)

1. Pechorskaya geofizicheskaya ekspeditsiya.
(Pechora Basin--Geology, Stratigraphic)
(Logging (Geology))

GRECHUKHIN, V.V.; NEYMAN, Ye.A.; YANSHEVSKIY, Yu.P.

Methods of using lateral logging in Pechora Basin coal deposits. Geofiz. razved. no.12:74-100 '63. (MIRA 16:11)

GRECHUKHIN, V.V.

Efficient combination of geophysical methods for studying coal prospecting holes. Prikl. geofiz. no.37:169-182 '63. (MIRA 16:10)

GRECHUKHIN, V.V.

Determining relative and apparent resistances and their use in studying the ash content of coal beds. Geofiz. razv. no. 15:130-144 '64. (MIRA 17:7)

GRECHISHKIN, Vladimir Vasil'yevich; DAKHNOV, V.N., doktor geol.-miner. nauk, prof., red.

[Geophysical methods of investigating exploratory boreholes in coal beds] Geofizicheskie metody issledovaniia ugol'nykh skvazhin. Moskva, Nedra, 1965. 467 p. (MIRA 18:3)

1. Zaveduyushchiy kafedroy promyslovoy geofiziki Moskovskogo instituta neftekhimicheskoy i gazovoy promyshlennosti (for Dakhnov).

GRECHUKHIN, V.V.

Classification of coal deposits according to geophysical characteristics. Sov. geol. 7 no.7:116-122 Jl '64.
(MIRA 17:11)

1. Pechorskaya geofizicheskaya ekspeditsiya.

GRECHUKHIN, V.V.

Determining the ash content of coal seams from the data of laterologging. Razved. i okh. nedr 29 no.6:45-50 Je '63. (MIRA 18:11)

1. Pechorskaya geofizicheskaya ekspeditsiya.

ACC NR: AT6028383 (N) SOURCE CODE: UR/0000/65/000/000/0192/0202

AUTHOR: Grechukhin, V. V.

ORG: none

TITLE: Geophysical methods of exploration in the Pechora coal basin

SOURCE: International Geological Congress. 22d, New Delhi, 1964. Geologicheskiye rezul'taty prikladnoy geofiziki (Geological results of applied geophysics); doklady sovetskikh geologov, problema 2. Moscow, Izd-vo Nedra, 1965, 192-202

TOPIC TAGS: coal basin, coal, geophysic expedition, coal deposit, core drilling, coal prospecting, seismic prospecting

ABSTRACT: An investigation conducted in the Pechora coal basin has revealed quantitative regularities in regional variations of some physical properties of coal-bearing rocks and their relationship with different composition of coal. It has been established that the country rocks of highly metamorphosed coals have higher resistivity, density, and velocity. These regularities suggest the use of resistivity, gravity, and seismic prospecting not only for locating new coal beds under a thick cover of Quaternary rocks, but also for predicting the grades of coal. Investigation of the physical properties of rocks served as the basis for making geological and geophysical classification of coal deposits consisting of four categories. Every category required special methods of surveying boreholes in coal. The advances achieved in coal-field geophysics have provided for the first time in prospecting for coal in the USSR the possibility of no-core drilling of coals and country rocks in the

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ACC NR: AT6028383

Pechora basin. Geological documentation of no-core holes and further estimation of the beds is based on geophysical methods. No-core drilling has resulted in higher productivity, lower costs, and a higher rate of and quality of geological prospecting for coal deposits and exploration of mine fields. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 08/ SUBM DATE: 06Jan65/ ORIG REF: 004/

CARD 2/2

L 21922-66 EWT(m)/ETC(m)-6/T/EWP(f) WW/WE

ACC NR: AP6014623 SOURCE CODE: UR/0114/65/000/004/0001/0005

AUTHOR: Kovalevskiy, M. M. (Engineer); Proskuryakov, G. V. (Engineer); Revzin, B. S. (Engineer); Grechukhin, Ye. M. (Engineer); Sorokin, G. N. (Candidate of technical sciences); Tyryshkin, V. G. (Candidate of technical sciences)

69
68
8

ORG: none

TITLE: Results of the gas turbine heat tests at the GT-6-750 TMZ liquid fuel plant

SOURCE: Energomashinostroyeniye, no. 4, 1965, 1-5

TOPIC TAGS: gas turbine, thermometer, resistance thermometer, tachometer, wattmeter, monometer, turbine compressor

ABSTRACT: The article presents the results obtained in the final stage of thermotechnical testing of the 6 megawatt gas turbine installation in the plant. A schematic diagram of the measuring set-up and instrumentation is shown: it consisted essentially of a mercury thermometer, a resistance thermometer, a manometer, a standard manometer, a tachometer and a laboratory wattmeter. At a temperature of 760°C before the high-pressure stage and with 6 MW output at 6200 rpm, the efficiencies were 86.5% for the high-pressure stage (89.5% design value) and 91.6% for the low-pressure stage (90.5% design value). All the equations are shown for calculating power losses, heat balance and efficiencies. The compressor was also tested at the same time. The results are presented in the form of curves. These show the overall perfor-

UDC: 621.438.001.41

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ACC NR: AP6014623

mance characteristics, namely the temperature and compression ratio as functions of output power under optimum conditions of the high-pressure stage operation, also the output power as a function of speed at various fuel rates. The results are compared with those of previous preliminary tests and original design values. The analysis of test data provide a clue for possible improvements of the gas turbine performance. Orig. art. has: 5 figures, 9 formulas and 1 table. [JPRS]

SUB CODE: 21 / SUBM DATE: none / ORIG REF: 001

Card 2/2 nst

GRECHUKHIN, Ye.M., inzh.; KUROCHE, V.D., inzh.; [illegible], inzh.; [illegible], V.N., inzh.

Registering the characteristics of a compressor in a gas turbine system. Energomashinostroenie 10 no.6:40-42 Je '64. (MIRA 17:9)

GRECHUKHINA, M. P.

USSR/Chemistry - Electrolytic Deposition Dec 50
of Alloys

"Adsorptive Chemical Polarization and Cathodic Plating From Uncomplex Electrolytes," M. A. Loshkarev, M. P. Grechukhina, Chemicotechnol Inst, Dneprope-trovsk

"Zhur Fiz Khim" Vol XXIV, No 12, 1502-1510

Addition of small quantities of gelatin and surface-active admixtures (α-naphthol and diphenylamine to phenolsulfonic acid electrolyte in cathodic deposition of Pb-Sn alloys produced high polarization,

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USSR/Chemistry - Electrolytic Deposition Dec 50
(Contd)

dense adsorption layers on cathode surface, and dense, fine-grained deposits. Deposition of Cu-Pb and Cu-Sn alloys was more difficult at low limiting current.

170T21

PA 170T21

ACC NR: AP6015938 SOURCE CODE: UR/0239/65/051/003/0398/0400

AUTHOR: Grechishkina, A. P; Kokhar', A. I.--Kokhar, A. I.

ORG: Department of Normal Physiology, Medical Institute, Lugansk (Kafedra normal'noy fiziologii Meditsinskogo instituta); Department of Automation, UkrNIIGidrougol', Lugansk (Otdel avtomatizatsii Nauchno-issledovatel'skogo instituta Ukrniigidrougol')

TITLE: Method for prolonged contactless irritation of nerves by a pulsed induction current

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 51, no. 3, 1965, 398-400

TOPIC TAGS: dog, electrophysiology, radio receiver, neurophysiology, experiment animal

ABSTRACT: Hitherto prolonged nociceptive irritation of nerves in experimental investigations was produced by placing in contact with the nerve plexiglas plates, glass beads held by a ligature, metal spirals, etc. A disadvantage of these methods was the fact that it was impossible to measure and control the strength, frequency, and duration of the irritation produced. A radio receiver was designed which can be sewn into the body of experimental animals in such a manner that electrodes projecting from it are in contact with the nerve investigated. An induction current is generated in the receiver by means of a radio transmitter. To pro-

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UDC: 612.81.08

L 25804-66
ACC NR: AP6015938

duce nociceptive irritation for prolonged periods in the sciatic nerve of dogs, a radio transmitter operating at frequencies of 2-18.1 megacycles and a power of 24-90 w was used. In one variant of the experiment, the receiver held in a plastic insulating casing was sewn under the skin of the dog (the total weight of the casing, receiver, and electrodes was 20 g). In another variand of the experiment, only the electrodes were inserted under the skin, while the receiver was attached on the outside. The distance between the transmitter antenna and the receiver was 10-20 cm. By applying this method of irritation, the precise minimum values of current strength and potential could be determined at which 1) twitching of the muscles of the hind leg set in; 2) nociceptive irratation was established, as indicated by the behavior of the dogs (general motor reaction, barking, squealing, etc.). Orig. art. has: 2 tables. [JPRS]

SUB CODE: 06, 09 / SUBM DATE: 16Jan64 / ORIG REF: 002

Card 2/2 CC

CHECHURKINA, Marina Prokhorovna; ANDRIYENKO, Z.D., red.

[Tables of the composition of the product of instantaneous fission of U^{235}, U^{238}, and Pu^{239}] Tablitsy sostava produktov mgnovennogo deleniia U^{235}, U^{238}, i Pu^{239}. Moskva, Atomizdat, 1964. 67 p. (MIRA 17:6)

ACCESSION NR: AR4039243 S/0269/64/000/004/0073/0073

SOURCE: Ref. zh. Astronomiya, Abs. 4.51.492

AUTHOR: Kirichenko, L. V.; Grechushkina, M. P.

TITLE: Radioactivity of the soil and plants in the vicinity of falling of the Tunguska meteorite

CITED SOURCE: Tr. Tomskogo otd. o-va SSSR, Betatron. labor. Tomskogo med. in-ta, 1963, 139-152 Geogr.

TOPIC TAGS: meteorite, Tunguska meteorite, radiometric survey, soil radioactivity, plant radioactivity

TRANSLATION: A detailed ground β-survey was made and the β-radioactivity of plant ash was determined for the purpose of determing the radioactivity of the soils and plants in the vicinity of falling of the Tunguska meteorite and comparison of this radioactivity with adjacent regions; the nature and peculiarities of distribution of this radioactivity also were determined.

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ACCESSION NR: AR4039243

The article includes a detailed description of the principles and techniques of the measurements. The radiometric survey and analysis of soil samples in the region of the falling revealed that with respect to content of natural radioactive products this region in no way differs from other regions with similar natural conditions. The level of contamination by radioisotopes of artificial origin was caused by the fallout of products from nuclear explosions. No pattern was found in the distribution of radioactivity in plants. The radioactivity of annual growth rings of trees was determined by measuring the ash of rings representing growth increments of 20 years each. The layers for 1900-1920 do not possess a high radioactivity, but the outer layers for 1940-1960 are more radioactive than for earlier years. The distribution of radioactivity of moss in depth revealed a sharp radioactivity decrease with increasing depth. The radioactivity of the upper layer exceeded by a factor of 8-10 the radioactivity at a depth of 25-35 cm. M. D'yakonova.

DATE ACQ: 12May64 SUB CODE: AS ENCL: 00

Card 2/2

PREDVODITELEVA, A.D., kand.tekhn.nauk; GRECHUKHINA, N.A., inzh.

Experimental use of synthetic fibers in the knitting industry. Tekst.prom. 19 no.12:44-46 D '59.
(MIRA 13:3)

(Textile fibers, Synthetic)
(Knit goods industry)

LIPKOV, I.A., kand.tekhn.nauk; GRECHUKHINA, N.A., inzh.

Use of synthetic fibers in the knit goods industry. Tekst.prom. 21 no.11:19-23 N '61. (MIRA 14:11)

1. Sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instituta trikotazhnoy promyshlennosti (VNIITP).
(Textile fibers, Synthetic)
(Knit goods industry)

LIPKOV, I.A., kand.tekhn.nauk; GRECHUKHINA, N.A., inzh.; TELKOVA, Ye.I.; SAVINA, V.N., tekhnik

Processing of the new types of synthetic fiber yarns (in mixtures and as such) in the manufacture of knit goods. Nauch.-issl.trudy VNIITP no.4:118-141 '63. (MIRA 17:4)

GRECHUKHINA, N.A., nauchnyy sotrudnik

Some characteristics of knit goods made from high-bulk yarn.
Tekst.prom. 24 no.1:65-68 Ja '64. (MIRA 17:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut trikotazhnoy promyshlennosti.

GRECHUKHINA, N.A., starshiy nauchnyy sotrudnik, RAPOPORT, K.A., kand. biolog. nauk

Physico-hygienic properties of goods manufactured from synthetic bulk yarn. Tekst. prom. 25 no.3:44-48 Mr '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut shelkovoy promyshlennosti (for Grechukhina). 2. Zaveduyushchiy laboratoriyey Instituta obshchey i kommunal'noy gigiyeny imeni A.N. Sysina AMN SSSR (for Rapoport).

RAPOPORT, K.A., kand. biol. nauk; GRECHUKHINA, N.A., starshiy nauchnyy sotrudnik

Physiological and hygienic testing of articles made from bulked synthetic fibers. Tekst. prom. 25 no.10:65-67 O '65.
(MIRA 18:10)

1. Zaveduyushchiy laboratoriyey gigiyeny novykh sinteticheskikh materialov Vsesoyuznogo nauchno-issledovatel'skogo instituta trikotazhnoy promyshlennosti, Moskva (for Rapoport).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut trikotazhnoy promyshlennosti, Moskva (for Grechukhina).

LIPKOV, I.A.; GRECHUKHINA, N.A.; TELKOVA, Ye. I.

Developing the technology of knit outerwear production from bulked synthetic yarns. Nauch.-issl. trudy VNIITP no. 5:62-79 '64 (MIRA 19:1)

L 33765-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6004993 (A) SOURCE CODE: UR/0342/65/000/010/0065/0067

AUTHOR: Rapoport, K. A. (Head, Candidate of biological sciences); Grechukhina, N. A. (Senior research associate)

ORG: [Rapoport] Hygiene Laboratory for New Synthetic Materials (Laboratoriya gigeny novykh sinteticheskikh materialov); [Grechukhina] VNIITP

TITLE: Physiological-hygienic studies of clothing made from high-bulk synthetic yarn

SOURCE: Tekstil'naya promyshlennost', no. 10, 1965, 65-67

TOPIC TAGS: textile industry, textile engineering, heat insulation, CLOTHING, BODY TEMPERATURE

ABSTRACT: A specially designed bioheat meter (not described) was used to measure heat loss by convection and radiation from five subjects wearing experimental synthetic and cotton clothing and engaged in minimum muscular activity (sitting and writing). Observations were made in a building with air movement not over 0.1-0.2 m/sec. Thermal resistance of air was taken as 0.14 $m^2 \cdot hr \cdot °C/kcal$. Measurements were made every 30 min. The average heat insulation of the clothing was 0.2 $m^2 \cdot hr \cdot °C/kcal$, which ensured comfort of subjects during vigorous activity (at 20°C), when walking (at 10-13°C), and in winter exercises (at -8 to -12°C). Orig. art. has: 2 tables.

SUB CODE: 05/ SUBM DATE: none

UDC: 677.66.001.45

Card 1/1

BERESTNEV, V.A.; GRECHUSHKINA, N.I.; LYTKINA, M.B.; KARGIN, V.A.

Study of the structural characteristics of various viscose fibers by means of light microscopy. Khim.volok. no.3:45-48 '62. (MIRA 16:2)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (for Berestnev, Grechushkina, Lytkina). 2. Fiziko-khimicheskiy institut im. L.Ya.Karpova (for Kargin).
(Rayon)

L 36427-66 EWT(1)/EWT(m)/T DJ/WE/JK

ACC NR: AP6015207 (A) SOURCE CODE: UR/0411/65/001/002/0167/0174

40
37
B

AUTHORS: Nette, I. T.; Grechushkina, N. N.; Rabotnova, I. L.

ORG: Biological Soil Science Faculty, Moscow State University (Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: The growth of certain mycobacteria in petroleum and petroleum products

SOURCE: Prikladnaya biokhimiya i mikrobiologiya, v. 1, no. 2, 1965, 167-174

TOPIC TAGS: microbiology, petroleum residue, fuel microorganism

ABSTRACT: Research into the nature of cultures of microorganisms actively using petroleum products was initiated because fuels and lubricants can acquire desirable new properties due to the action of these microorganisms. Soils from petroliferous areas of the Ukraine and the Tatar and Moscow areas, vaseline and spindle oils, MK-20 and MT-16 p oils were used for isolating the microorganisms. A liquid medium of the following composition was used (%): NH_4NO_3 -- 0.1; KH_2PO_4 -- 0.02; $MgSO_4$ -- 0.01; NaCl -- 0.01. Tap water pH after sterilization was 7.2--7.5, and oils introduced into the medium made up 1%. Isolation was performed under varying conditions of aeration--stationary and oscillating at 30C, and growth time was reduced from 7--14 days to 4--7 days under the more aerated conditions. The tabulated results show that 76 pure cultures actively utilizing hydrocarbons were isolated, the majority of them

Card 1/2 UDC: 613.663+576.852.2

L 36427-66

ACC NR: AP6015207

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being mycobacteria with the dominant strains being close to Mycobacterium mucosum and Mycobacterium lacticolum. Cultures were grown in about 5 ml of the following medium (%): NH_4NO_3 -- 0.4; $MgSO_4$ -- 0.08; KH_2PO_4 -- 0.06; Na_2HPO_4 -- 0.14; tap water pH -- 7.2--7.3, with the addition of 1--2 drops of sterile hydrocarbon mixture at 28--30C for 7--10 days. Results show that the cultures most active in the use of petroleum and petroleum products were M. mucosum, M. lacticolum, and 3 strains of bacteria which grow well in all mixtures except in heavy, nonparaffin naphthene petroleum. Results of growing microorganisms in individual hydrocarbons show that all cultures used basically only paraffin. Mycobacteria were most active in utilizing individual hydrocarbons and hydrocarbon mixtures, with M. mucosum and M. lacticolum being most active, particularly in the use of gases. The majority of strains grew in C_1-C_4, C_6-C_{10}, C_{12} and C_{16} alkanes, phenol, xylene, and toluyl, but not in cyclohexane, naphthalene, a-methylnaphthalene, and benzol. Ethylene and isooctane were used only by certain strains. Many strains of M. lacticolum growing in individual hydrocarbons and gases form red and orange pigments, indicating the possibility of the accumulation of carotinoids in hydrocarbons. The authors thank K. I. Bessmertnyy for supplying oils and fuels, and they also thank microbiology students K. A. Nikitina and S. M. Shust for participating in obtaining the cultures. Orig. art. has: 4 tables.

SUB CODE: 21, 06/ SUBM DATE: 30Nov64/ ORIG REF: 005/ OTH REF: 011

Card 2/2 hs

GRECHUKHINA, O.A.; TIMOFEYEVA, G.P.

Effect of foliar feeding of plants on the absorption of mineral nutrients by the root system. Vest. LGU 16 no.3:36-45 '61.
(MIRA 14:2)

(Plants—Nutrition)

BLUVSHTEYN, M.M., inzh.; GRECHUSHKINA, O.I., inzh.

Designing multiple-article continuous lines for simultaneous assembly of small and medium electric equipment. Vest.mashinostr. 43 no.4:70-77 Ap '63. (MIRA 16:4)
(Assembly-line methods) (Electric equipment industry)

CA

Adsorption chemical polarization and cathodic deposition of alloys from noncomplex electrolytes. M. A. Loshkarev and T. N. Gratsiankina (Chem.-Tech. Inst., Dnepropetrovsk). Zhur. Fiz. Khim. **24**, 1502-10(1950). The electrodeposition of Pb, Cu, Sn-Pb, Cu-Pb, and Cu-Sn is studied. The exptl. technique and the deposition of Sn were described (C.A. **41**, 6176b). The work shows the effect of org. agents (phenol, naphthol, aromatic amines) and colloids (gelatin) on the cathodic deposition of metals and alloys from aq. electrolytes without formation of cationic complexes. A large chem. polarization η due to the presence at the cathode of a dense adsorbed layer is observed with the following soln.: 0.2 *N* Pb^{++}, 1.0 *N* $HOC_6H_4SO_3H$, 0.7 g./l. α-naphthol, 0.03 g. / l. diphenylamine, 1 g./l. gelatin. When Pb and Sn are deposited simultaneously, η reaches 0.6 v. at c.d. 1 amp./sq. cm. The deposited alloy is compact and microcryst. The ratio Pb/Sn lies between 3 and 4, increasing at first with c.d., then decreasing. Addn. of impurities does not produce large values of η on Cu deposition. This may be due either to a specific interaction between Cu ions and the org. layer through which they have to diffuse or to the porosity of this layer in the case of Cu. The latter explanation is correct as shown by the Cu-Sn alloy deposition from a soln. with the following compn.: 0.25 *N* Cu^{++}; 0.25 *N* Sn^{++}; 2 *N* H_2SO_4; 1 g./l. gelatin; satd. with α-naphthol, thymol, and diphenylamine. The data obtained at 18° (no stirring) are: (0, 1.25) (0.1, −44); (0.2, −98) (0.4, −145) (1.0, −197) (1.4, −208) (2.0, −231) (3.0, −250) (4.0, −270) (8.0, −344) (10, −364) (9.8, −396); (0.4, −530) (0.2, −551) (0.1, −572) (0.2, −661) (0.84, −716) (2.1, −758) (4.3, −770) (10, −791) (14, −806); (20, 812) (30, −830) (40, −826). In each pair of data, the first figure gives the c.d. (ma. sq. cm.), and the 2nd figure *E* (mv.) relative to the satd. calomel electrode. The first rise in the (c.d., *E*) curve corresponds to the discharge of Cu. When the peak at approx. −0.4 v. is reached, Sn is also deposited (10-15% Sn in the alloy). At the same time, the adsorbed layer becomes dense, its permeability to both Cu and Sn becomes small, the c.d. decreases and large values of η are now possible. Between −0.4 and −0.7 v., the alloy contains 50% Sn. Similar behavior is shown by the deposition of Cu-Pb alloys from the following soln.: 0.125 *N* Cu^{++}; 0.25 *N* Pb^{++}; 0.5 *N* $HOC_6H_4SO_3H$; 2 g./l. gelatin; satd. in α-naphthol and diphenylamine. In this case, the equality of the discharge currents of Cu^{++} and Pb^{++} shows that both ions diffuse through the adsorbed layer in a similar fashion. It is found in all cases that gelatin increases the polarization and improves the quality of the deposit.

Michel Boudart

Grechukhina, I. N.

Anodic oxidation of a metal with texture. G. S. Vozdvizhenskii, S. Sh. Valeev, and T. N. Grechukhina (Kazan Branch Acad. Sci. U.S.S.R.). *Zhur. Fiz. Khim.* 25, 87–92(1951); cf. *C.A.* 43, 5077*b*; 44, 7105*e*.—The influence of the metal texture on its anodic oxidation is demonstrated for Al, duralumin, Cu, and Fe by measuring the porosity of the oxide film on samples polished with sand paper (I) or mechanically (II) or electrochemically (III). The porosity as given by the drop method and(or) by the electrochem. method (Akimov and Paleolog, *C.A.* 40, 7011[1]) decreases in the order I, II, III. The no. of pores is always larger on planes perpendicular to the draw axis than on planes parallel to it, except on Cu after long (45 min.) anodic oxidation for which the reverse is true. There are more pores in films of annealed duralumin than in the quenched samples.

Michel Boudart

GRECHUKHINA, T. N.

137-1957-12-24565

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 231 (USSR)

AUTHOR: Grechukhina, T. N.

TITLE: Electrodeposition of Chrome on the Facetsof a Single Copper Crystal (Elektroosazhdeniye khroma na granyakh mednogo monokristalla)

PERIODICAL: Izv. Kazansk. fil. AN SSSR. Ser. khim. n., 1956, Nr 3, pp 101-104

ABSTRACT: Results of an investigation of the electrolytic precipitation (EP) of Cr on thefacets of a single Cu crystal. The conditions of the EP, the amounts of Cr deposited as a function of the current, the static E, and the E for the precipitation of Cr, established at the crystal facets (100) and (110), all differ considerably among themselves. It is pointed out that the dependence of these characteristics on the crystallographic orientation is the reason for the selective EP of Cr on an electropolished surface, which hinders the formation of shiny Cr precipitates of any significant thickness ($> 0.5 \mu$) upon a background of disoriented structure.

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L. F.

1. Single crystals-Electroplating-Test results 2. Chromium-Electrodeposition-Test results

VALEYEV, A.Sh.; GRECHUKHINA, T.N.

Use of the photogalvanic method in the study of mechanism underlying electrode processes. Izv.Kazan.fil. AN SSSR. Ser.khim.nauk no.6: 183-191 '61. (MIRA 16:5)

(Electrodes) (Photochemistry)

GRECHUKHINA, T.N.; VALEYEV, A.Sh.

Connection between structural changes in copper surface during anodic dissolution and the semiconductor properties of the originating film. Izv. AN SSSR. Ser. khim. no.11:1942-1945 '65. (MIRA 18:11)

1. Khimicheskiy institut im. A.Ye. Arbuzova AN SSSR.

L 25634-66 EWT(1)/EWT(m)/EWP(w)/T/EWP(t) IJP(c) JD/AT

ACC NR: AP6016110 SOURCE CODE: UR/0062/65/000/011/1942/1945

AUTHOR: Grechukhina, T. N.; Valeyev, A. Sh. 67

ORG: Chemical Institute im. A. Ye. Arbuzov, AN SSSR (Khimicheskiy institut AN SSSR)

TITLE: Relationship of the structural changes of the surface of copper during anodic solution to the semiconductor properties of the film that arises

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 11, 1965, 1942-1945

TOPIC TAGS: metal surface, copper, photoelectric effect, semiconducting film, electron diffraction analysis

ABSTRACT: The photoelectric phenomena and structural changes in the surface of metals during anodic solution were studied in various electrolytes under the conditions of the formation of a very thin oxide film. A definite interrelationship was established between the structural changes and the magnitude and nature of the photoelectrochemical effect that arises. The structural changes on the surface of copper were studied during anodic solution in a 3% copper sulfate solution with addition of 1% sulfuric acid. Solution at current densities lying above the abrupt increase in the potential leads to a smoothing out of the microroughnesses of the surface without luster. Electron diffraction studies established that a thin film of cuprous oxide arises on the copper surface in this case. On the basis of the data of photoelectrochemical investigations, the authors hypothesize that the smoothing of the surface is due to the high-resistance contact layer of cuprous oxide at the interface with copper. The authors thank G. S. Vozdvizhenskiy for the discussions of the work and for his advice. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: 04May64 / ORIG REF: 008 UDC: 541.13

Card 1/1

GRECHUN, N.K., inzh.

Over-all mechanization of the transportation and handling of cement. Stroi. i dor mash. 7 no.6:4-6 Je '62. (MIRA 15:7)
(Cement--Transportation)

[redacted], P.Yo.

Asymptotic equilibrium and creep of frozen soils in a complex stressed state. Inv. SO AN SSSR no.6 Ser. tekh. nauk no.2:59-69 '64. (MIRA 17:10)

1. Institut merzlotovedeniya Sibirskogo otdeleniya AN SSSR, Yakutsk.

GRECHUSHKIN, V.S.

Quadrupole relaxation in some chlorates. Opt. i spektr. 18 no.4:727 Ap '65. (MIRA 18:8)

OSTROUKHOVA, N.P.; VOLOSTNYKH, A.V.; GRECHUSHKINA, A.G.; BAUMANOVSKAYA, A.P.; MESHCHERYAKOVA, Z.P.

Supplementary methods of laboratory diagnosis of bacillary dysentery. Zhur.mikrobiol.epid. i immun. 29 no.2:92-95 F '58. (MIRA 11:4)

1. Iz laboratorii dorozhnoy sanitarno-epidemiologicheskoy stantsii Tomskoy zheleznoy dorogi.
(DYSENTERY, BACILLARY, diagnosis,
laboratory supplementary methods (Rus)